



TESTING FIRM NINYO & MOORE SAVES MONTHS ON CONSTRUCTION SCHEDULE USING COMMAND CENTER

Ninyo & Moore Geotechnical and Environmental Sciences Consultants are committed to being cost-effective and thorough in meeting their clients' project needs and objectives. When working on the construction of The Grand, a new development at 1709 Chestnut Place in Denver's Union Station district, they knew they needed an option to keep the project on schedule and on budget.



The Goal: Speedy Strength Tests

One area that can delay construction is waiting to assess whether concrete pours have reached the desired strength level.

Typically, acceptance testing for strength is achieved through flexural or compressive strength tests of beam or cylinder specimens in accordance with standard test methods. It is assumed the test specimens are representative of the same concrete that is placed in the field. If testing of the specimens determines design strength has been achieved, then it is assumed that strength has been achieved in the field, as well. However, assuming that concrete in the field gains strength at the same rate as test specimens is not always the case.

Maturity can bridge the gap between what is really going with in-place concrete and what is being assumed when breaking cylinders or beams for acceptance. It can also prove that in-place concrete has achieved adequate strength sooner than anticipated by acceptance testing, leading to stressing tendons, removing formwork, and applying loads sooner. As a result, construction schedules may be expedited, and in the construction business, time is money.

With 36 total floors involved in the construction of The Grand, Ninyo & Moore needed to get the job done on time and reliably.

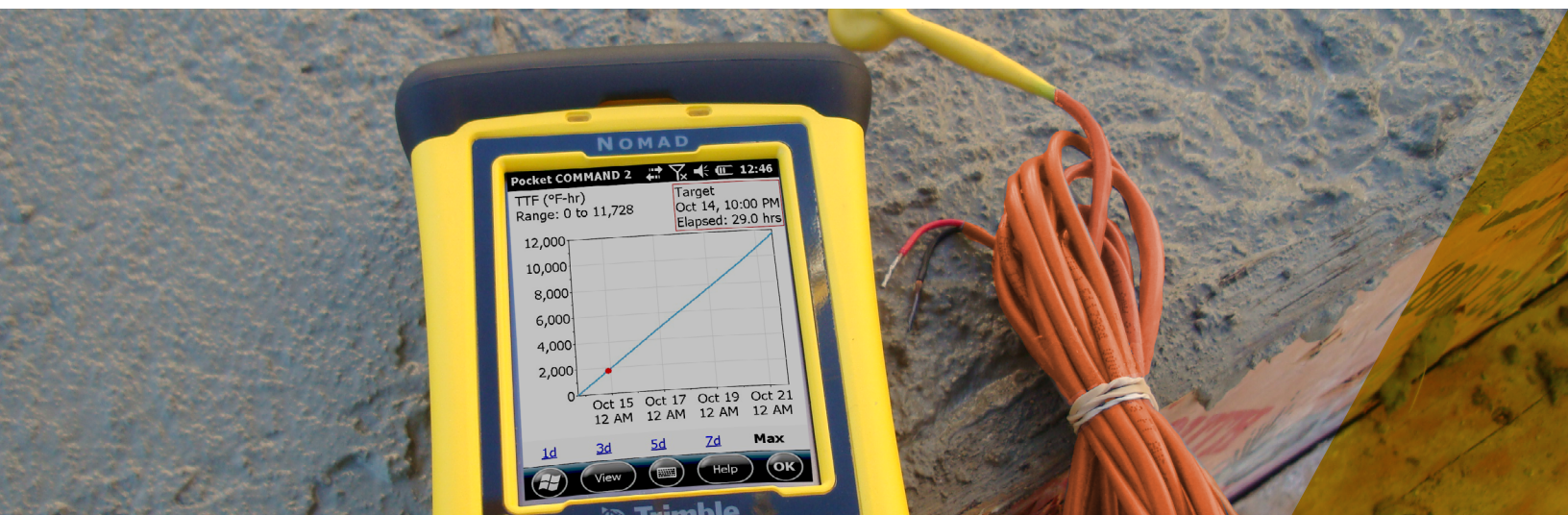
The COMMAND Center System

COMMAND Center adds value for testing firms like Ninyo & Moore, who is representing the owner's interest, because the system enables the contractor to expedite the project schedule resulting in the owner realizing profits sooner.

COMMAND Center employs small, self-powered sensors placed in fresh concrete that automatically measure temperature data at predetermined intervals and store data internally. The sensors connect to a compatible device running the free, powerful COMMAND Center software, which calculates and compares sensor data against strength models based on the principle of maturity—a proven scientific method that determines when the concrete has achieved the desired strength.

Ninyo & Moore implemented COMMAND Center on The Grand, a 900,000-square-foot mixed-use development including a 12-story tower, 24-story tower, and below-grade parking levels in Denver, Colorado. The firm used COMMAND Center to quickly and reliably determine when concrete achieved the necessary strength to stress post-tension cables on each pour.

The owner of The Grand had implemented maturity and seen the benefits on previous projects, and was eager to use maturity again on this development.



The Result: Consistent, Reliable Data & Months Saved on Construction Time

Ninyo & Moore used about four sensors per pour—roughly one every 75 cubic yards—to get an accurate representation of the concrete's curing conditions. Phillip Allen, a project manager with Ninyo & Moore, said he liked that the sensors are durable, constantly running, easy to set, and don't need to be turned on.

"I can look up any time or day and see what the cylinder temperatures were," Allen said.

Not only were the sensors convenient and easy to place, but COMMAND Center software is easy to use as well. Every purchase includes free, in-depth training, but Allen found specialized training wasn't necessary because the software was so easy to learn.

Using COMMAND Center concrete temperature and maturity meters helped the team move construction along with reduced risk and more reliable data. With COMMAND Center, the firm could be completely confident that the maturity data was better representative of the concrete's conditions than simply using cylinders, where variability is much higher.

"COMMAND Center's maturity meters remove doubt as far as what the concrete is doing because field-cured cylinders are touchy and completely dependent on humans doing everything right."

Allen said COMMAND Center and the maturity method required "less coordination" and provided "more accurate and more consistent" data than other methods of measuring concrete strength.

Allen said that in a previous job, almost every single cylinder break after 24 hours didn't reach sufficient strength, forcing the team to wait another day to perform another break. But COMMAND Center helped The Grand construction run efficiently.

"COMMAND Center saves the project months because you aren't going back and forth getting field-cured cylinders back to test, and there's no contractor setting up forms to stress only to have the concrete not make strength," Allen said.

With 110 total pours on the project, there was a lot of time to be saved.

"For each pour, we saved about a day, day and a half, maybe even two days," Allen said.

Allen said the time savings that resulted from using COMMAND Center and the maturity method saved a lot of money on the project. Because COMMAND Center's data was so reliable, the team was also able to drastically reduce the number of cylinders used in the project, resulting in additional cost savings.

In addition to faster and more reliable strength tests, COMMAND Center and the maturity method are a beneficial value-add service for firms like Ninyo & Moore to offer their clients.

"For companies that don't know how to create a maturity curve, we can put together an estimate and show them that we can help them speed up the schedule by months," Allen said.

GET STARTED TODAY

To learn more about how COMMAND Center can accelerate schedules and cut costs on your next construction project, visit www.COMMANDCenterConcrete.com or call +1 (888) 451 6233.



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